

source of the aromatics [is selected from the group consisting of reformat,] comprises a fluid cat cracker stream[, and mixtures thereof and wherein, with respect to the fluid cat cracker stream,] having a light fluid cat cracker stream [constitutes] fraction in an amount of from about 70% to about 100% of the fluid cat cracker stream.

4. (amended) In a method for controlling the formation of injector tip deposits in a gasoline direct injection internal combustion engine by combusting in the engine a fuel comprising gasoline characterized by having a T₉₀ in the range of about 150 to 182°C, an olefins content in the range of about 3.6 to 20 vol%, a sulfur content in the range of about 5 to 400 ppm and an aromatics content in the range of about 10-45 vol%, the improvement comprising using as the source of aromatics a stream [selected from reformat,] comprising a fluid cat cracker stream [and mixture thereof and wherein, with respect to the fluid cat cracker stream] having a light fluid cat cracker stream [constitutes] fraction in an amount of from about 70 to 100% of the fluid cat cracker stream.

7. (amended) The method of claim 1, 2, 3, 4, 5 or 6 wherein the aromatics [in the fact are attributable to] source comprises a mixture of reformat and fluid cat cracker stream in a ratio of about 100:0 to 25:75.

REMARKS

The amendments render Examiner's 35 U.S.C. § 112 objections and 35 U.S.C. § 102 rejection of claims 1-9 mute. Moreover, amended claims 1-9 are not obvious over the cited prior art.

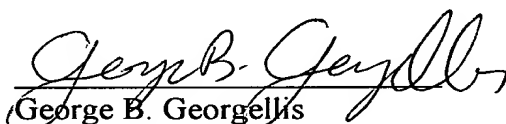
Applicants' invention requires the use of aromatics from a FCC stream wherein the amount of light FCC is from about 70% to 100% of the FCC stream. None of the cited references teaches this element of applicants' claimed invention. None of the cited references alone or in combination disclose this element of the present invention. Therefore, applicants' invention is not obvious over the cited references since their combination fails to

disclose all the elements of the claimed invention. Other differences exist between the cited references and the present invention.

For example, Orr focuses primarily on the effect of fuel composition on emissions rather than deposit formation. Generally, fuel emissions do not correlate with deposit formation. Likewise, Russell and Malfer deal primarily with the benefits of gasoline detergents and do not teach about the effects of fuel composition on deposit formation.

For at least the above reasons, all claims are now allowable.

Respectfully submitted,



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☒ Pursuant to 37 CFR 1.34(a)

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B¹ 1. (amended) A method for controlling the formation of injector deposits in a gasoline direct injection internal combustion engine by combusting in said engine a fuel comprising gasoline containing from about 12 to about 65 vol% aromatics wherein the source of the aromatics comprises a fluid cat cracker stream having a light fluid cat cracker stream fraction in an amount of from about 70% to about 100% of the fluid cat cracker stream.

2. The method of claim 1 wherein the light fluid cat cracker stream constitutes about 85% to 100% of the fluid cat cracker stream.

3. The method of claim 1 wherein the light fluid cat cracker stream constitutes about 95% to 100% of the fluid cat cracker stream.

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B² 4. (amended) In a method for controlling the formation of injector tip deposits in a gasoline direct injection internal combustion engine by combusting in the engine a fuel comprising gasoline characterized by having a T₉₀ in the range of about 150 to 182°C, an olefins content in the range of about 3.6 to 20 vol%, a sulfur content in the range of about 5 to 400 ppm and an aromatics content in the range of about 10-45 vol%, the improvement comprising using as the source of aromatics a stream comprising a fluid cat cracker stream having a light fluid cat cracker stream fraction in an amount of from about 70 to 100% of the fluid cat cracker stream.

5. The method of claim 4 wherein the light fluid cat cracker stream constitutes about 85 to 100% of the fluid cat cracker stream.

6. The method of claim 4 wherein the light fluid cat cracker stream constitutes about 95 to 100% of the fluid cat cracker stream.

B3

7. (amended) The method of claim 1, 2, 3, 4, 5 or 6 wherein the aromatics source comprises a mixture of reformat and fluid cat cracker stream in a ratio of about 100:0 to 25:75.

8. The method of claim 7 wherein the aromatics in the fuel are attributable to a mixture of reformat and fluid cat cracker stream in a ratio of about 100:0 to 75:25.

9. The method of claim 1 or 4 wherein the aromatics in the fuel are attributable to reformat.